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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,056

01/24/2006

Erkki Yli-Vakkuri

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EXAMINER

SNELTING, ERIN LYNN

ART UNIT

PAPER NUMBER

1791

NOTIFICATION DATE

DELIVERY MODE

03/05/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No. 10/562,056	Applicant(s) YLI-VAKKURI ET AL.	
	Examiner Erin Snelting	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03-21-2006, 01-24-2006, 12-23-2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig.1, reference character “**7a**”; Fig. 2, reference character “**13a**”; Fig. 4, reference character “**40**”; Fig. 5, reference character “**D**”. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. The term "highly heat transmissive" in claim 1, line 31 is a relative term which renders the claim indefinite.

4. The term "highly heat transmissive" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claims 2-6 are also rejected by their dependence on claim 1.

5. Claim 1 recites the limitation "the mould supporting carriage" in line 31. There is insufficient antecedent basis for this limitation in the claim. It appears this should read "the mould carriage".

6. Claim 4 recites the limitation "the furnace" in line 9. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests that "in a lengthwise direction of the furnace" be amended to read "in the conveying direction of the mould carriages".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen '436 (US Patent No. 5,364,436) which incorporates by reference Peltonen '645 (US Patent No. 4,497,645), in view of Yli-Vakkuri '953 (US Patent Application Publication 2002/0116953 A1) and further in view of Leponen '440 (US Patent No. 5,147,440).
10. Regarding claim 1, Montonen '436 teaches:
- a. an upper mould carriage track with successive mould carriages ("upper conveyor track 2" and "wagons 4", Montonen '436, column 2, lines 49-51)
 - b. mould carriages whose front or rear wall separates successive heating compartments and several successive bending compartments from each other ("front walls 8", Montonen '436, column 2, lines 57-60 – note that downstream heating compartments are also bending compartments, as the described apparatus is intended to effect "both press bending and traditional gravity-based bending", Montonen '436, column 2, lines 8-10)
 - c. the mould carriages being adapted for an intermittent conveyance towards a press-bending compartment ("wagons for carrying the ring moulds through the furnace along a first horizontal track", Montonen '436, column 1, lines 19-20 and "When a wagon train on upper track 2 is at a standstill", Montonen '436, column 2, lines 56-57)

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- d. press-bending compartment having its ceiling provided with a male mould (“overhead press-bending mould 16...into bending station 14”, Montonen ‘436, column 3, lines 38-42, see also Figs. 1 and 3 illustrating a male mould)
- e. a lower mould carriage track with successive mould carriages (“lower conveyor track for carrying wagons 4 there along”, Montonen ‘436, column 2, lines 50-51)
- f. mould carriages whose rear or front wall separates successive cooling compartments from each other (“front walls 8”, Montonen ‘436, column 2, lines 57-58 and “front walls 8...on the lower chilling run there are separated chilling sections aligned with heating sections 10”, Peltonen ‘645, column 3, lines 62-66)
- g. the mould carriages being adapted for an intermittent conveyance in a direction opposite to the conveying direction of the mould carriages present on the upper mould carriage track (“lower run along which the cars are conveyed periodically in the direction opposite to that of the upper run”, Peltonen ‘645, column 1, lines 17-19)
- h. a number of bending moulds supported by the mould carriages (“Each wagon 4 carries a bending mould 5”, Montonen ‘436, column 2, line 51)
- i. preheating compartments present in the upstream end of the upper mould carriage track, in which the heating of glass panels is effected by means of convection for which thermal energy has been obtained from glass panels presently annealing in downstream end compartments of the lower mould carriage track (“The hot glasses in chilling sections deliver heat through radiation

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and convection to a glass on the upper run", Peltonen '645, column 3, lines 66-68)

j. radiation heating means on the ceiling of preheating compartments ("The ceiling of each heating station 10 is provided with electric resistance elements", Montonen '436, column 2, lines 60-64)

k. radiation heating means on the ceiling of gravitationally working bending compartments ("The ceiling of each heating station 10 is provided with electric resistance elements, the temperature of successive heating stations 10 rising gradually when progressing towards the downstream end of furnace 1", Montonen '436, column 2, lines 60-64 – note that downstream heating compartments are also bending compartments, as the described apparatus is intended to effect "both press bending and traditional gravity-based bending", Montonen '436, column 2, lines 8-10)

l. a lift mechanism for lowering the mould carriages from the upper track onto the lower track together with bent glass panels ("elevator 6", Montonen '436, column 2, lines 65-68 and column 3, lines 9-12; "articulated jack 6", Montonen, '436 column 4, lines 25-29)

m. mould carriages are provides with an open-structured or otherwise highly heat transmissive bottom (Peltonen '645, column 2, lines 19-27)

n. mould supporting carriage having its bottom fitted with bearer elements and the press-bending compartment has its lower section fitted with brace elements for the mould carriage, which provide bracing for the bearer elements

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during a press-bending operation performed by means of the male mould
("articulated jack 6 is used for hoisting wagon 4 along with its mould 5 upwards in view of effecting a press-bending operation between moulds 5 and 16",

Montonen '436, column 4, lines 31-34, see also Fig. 1, Montonen '436 – wagon 4 has areas of its bottom surface which serve as bearer elements on articulated jack 6, and articulated jack 6, whose upper element defines the lower section of the press-bending compartment, has elements including an upper element, legs, and a lower element that serve as bracing elements)

o. brace elements are provided with lifting and lowering mechanisms
("articulated jack 6 is used for lowering wagon 4", Montonen '436, column 4, lines 26-27; "articulated jack 6 is used for hoisting wagon 4 along with its mould 5 upwards", Montonen '436, column 4, lines 31-33; "articulated jack 6, comprising a crank gear 27 driven by a motor", Montonen '436, column 4, lines 6-7)

p. brace elements comprise a frame which has the brace elements arranged in connection therewith and which extends partly beyond the press-bending compartment's walls (Articulated jack 6 has an upper element, legs, and a lower element, as illustrated in Fig. 1, Montonen '436, which serves as a frame for the upper surface areas of articulated jack 6, which serve as brace elements. As the upper element of articulated jack 6 also defines the lower wall of the press-bending compartment, the legs and lower element of the frame extend beyond the press-bending compartment's walls)

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q. brace elements comprise power units which are arranged in connection with a frame portion remaining outside the press-bending compartment's wall and by which the frame is ascendable and descendable (Montonen '436, column 4, lines 5-15; again, the frame legs and lower element of articulated jack 6 remain outside the press-bending compartment's lower wall, defined as the upper element of articulated jack 6).

Montonen '436 does not teach:

- a. a *descendable and ascendable* male mould
- b. preheating compartments in which the heating of glass panels is effected by means of *forced* convection
- c. an intermediate floor which separates the bending compartments and preheating compartments from compartments there below.

In analogous art of glass bending, Yli-Vakkuri '953 teaches:

- a. preheating compartments in which the heating of glass panels is effected by means of forced convection (paragraph [0018]) for the benefit of increasing efficiency of energy use by utilizing waste heat from the cooling glass panels in a controlled manner
- b. an intermediate floor which separates the bending compartments and preheating compartments from compartments there below (paragraph [0007]) for the benefit of adequately and evenly heating the glass panels by providing supplemental heating elements above and below the glass panels.

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In analogous art of glass bending, Leponen '440 teaches a descendable and ascendable male mould ("a claw crane mounted in said station for raising and lowering said press-bending tool assembly", column 4, lines 22-23; see also press-bending tool 6 in Fig. 1) for the benefit of allowing more diverse configurations for press-bending. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Montonen '436 (and Peltonen '645) with the forced convection and intermediate floor of Yli-Vakkuri '953 and further with the ascendable and descendable male mould of Leponen '440 for the benefit of increasing efficiency of energy use by utilizing waste heat from the cooling glass panels in a controlled manner, adequately and evenly heating the glass panels by providing supplemental heating elements above and below the glass panels, and allowing more diverse configurations for press-bending.

11. Regarding claim 2, Montonen '436 (in Peltonen '645) further teaches the lifting and lowering mechanism for the brace elements comprises piston-cylinder units. (Peltonen '645, column 2, lines 45-49) Montonen '436 does not explicitly teach the piston-cylinder units are pneumatic or hydraulic cylinders, but as there are only three principle types of mechanical actuator piston-cylinder units, namely pneumatic, hydraulic, and spring, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any of the three principle types of units such as pneumatic or hydraulic cylinders for the benefit of increasing maximum available force for lifting and lowering the brace elements.

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12. Regarding claim 3, Montonen '436 teaches mould carriage's open-structured bottom as described for claim 1 above. Montonen '436 further teaches the mould bearer elements comprise flat bars, rods, tubes or other such beam-like elements fitted to the mould carriage's open-structured bottom (see Figs. 1 and 3, Montonen '436, articulated jack 6, specifically the upper element of articulated 6 situated directly beneath wagon 4). Montonen '436 does not explicitly teach the bearer elements are fitted to the *front and rear edges* of the mould carriage's bottom. However, this only involves a change in size of the bearer elements to correspond to the size of the mould carriage, and it has been held that scaling up or down of an element which merely requires a change in size is generally considered as being within the ordinary skill in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to size the bearer elements such that they are fitted to the front and rear edges of the mould carriage's bottom for the benefit of providing adequate support and stability to the mould carriage. Please see *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976).

13. Regarding claim 5, Montonen '436 further teaches in connection with the frame, positioning elements for the mould carriage ("aligning equipment", Montonen '436, column 4, lines 34-43 – note that the frame is part of articulated jack 6/hoist 6).

14. Regarding claim 6, Montonen '436 further teaches the press-bending operation is adapted to be at least partially performed by lifting the frame (Montonen '436, column 4, lines 31-34 – note that the frame is part of articulated jack 6/hoist 6).

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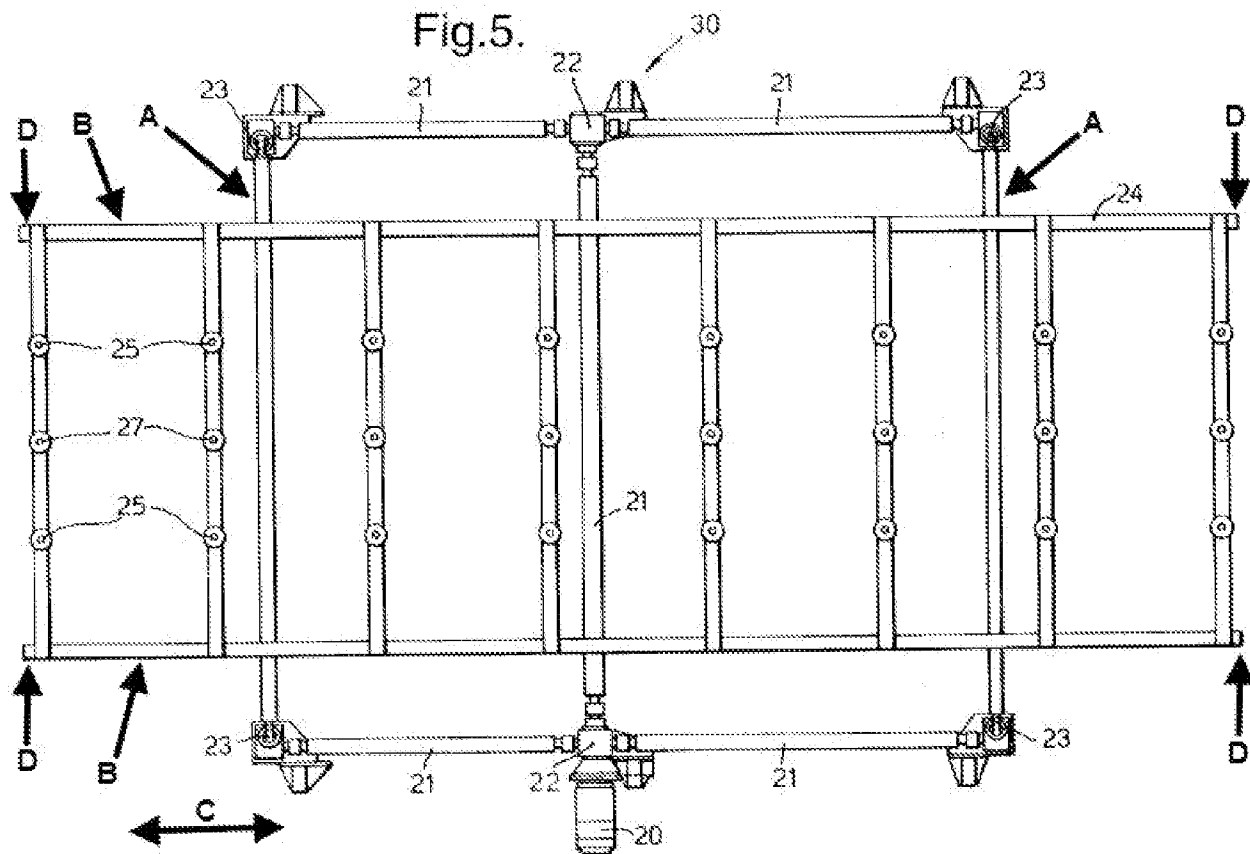
15. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Montonen '436 (US Patent No. 5,364,436), which incorporates by reference Peltonen '645 (US Patent No. 4,497,645), Yli-Vakkuri '953 (US Patent Application Publication 2002/0116953 A1) and Leponen '440 (US Patent No. 5,147,440) in view of Bennett '477 (US Patent No. 5,876,477).

16. Regarding claim 4, Montonen '436 teaches frame, bearer elements, press-bending compartment as described for claim 1 above. Montonen '436 does not teach two elongated girders, which are disposed at a distance from each other underneath the bearer elements and whose ends are formed with flanges extending beyond side walls of the press-bending compartment, and longitudinal beams, each of which is fitted rigidly in a lengthwise direction of the furnace between two successive flanges. In analogous art of glass bending, Bennett '477 teaches (see examiner's references to Fig. 5, inserted below):

- a. two elongated girders (**A**) which are disposed at a distance from each other underneath the bearer elements ("lifting pins 25", column 7, line 53) and whose ends are formed with flanges ("screw jacks 23", column 7, line 52) extending beyond side walls ("furnace side walls 7 (FIG. 3)", column 6, line 31) of the press bending compartment ("A space 5 in the furnace", column 6, lines 29-30, see also Fig. 3)
- b. longitudinal beams (**B**, part of "frame 24", column 7, line 52), each of which is fitted rigidly ("The driveshafts operate lead screws of the screw jacks 23 upon which the frame 24 is mounted", column 7, lines 58-59) in a lengthwise

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direction of the furnace (**C** – note that direction **C** is projecting into the plane of Fig. 3, and it is equivalent to direction “G” in Figs. 1, 2a, and 2b) between two successive flanges (**D**)



for the benefit of providing adequate and stable support for the mould carriage during the press-bending process, and also for positioning movement actuators outside of the press-bending compartment to simplify maintenance and so as not to expose the actuators to the heat of the compartment. Note that “flange” is interpreted as a projection formed to give additional strength, stiffness, or supporting area, or to provide a place for the attachment of other objects. It would have been obvious to one of

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ordinary skill in the art at the time of the invention to combine the method of Montonen '436 (and Peltonen '645), Yli-Vakkuri '953, and Leponen '440 with the frame of Bennett '477 for the benefit of providing adequate and stable support for the mould carriage during the press-bending process, and also for positioning movement actuators outside of the press-bending compartment to simplify maintenance and so as not to expose the actuators to the heat of the compartment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin Snelting whose telephone number is (571)272-7169. The examiner can normally be reached on Monday to Friday 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571)272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Steven P. Griffin/
Supervisory Patent Examiner, Art
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